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Perspectives on Bitcoin as an Institutional Investment

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- Each investment in a portfolio should have known drivers and relationships that describe the environments in which it excels or underperforms; this is not currently the case for Bitcoin.
- We currently characterize Bitcoin's behavior as that of a speculative risk asset; we continue to follow its development and look to further define its place within a diversified portfolio.

Should institutional investors consider adding Bitcoin as an asset class within a well-diversified portfolio? Stories in the business press about cryptocurrency values and market capitalization[1] might seem to point to serious consideration, and we've received many requests for guidance on this topic. Because each of our institutional clients has unique risk and return requirements, as well as constraints, that can be addressed in different ways, we don't have a single answer to the cryptocurrency question.

More relevant for most interested parties, we believe, is how State Street Global Advisors structures its thinking about Bitcoin and other cryptocurrencies.[2] We firmly believe that each investment in a portfolio should have known drivers and relationships that describe the environments in which it excels or underperforms. This is not currently the case for Bitcoin and other non-asset-backed cryptocurrencies.

In this paper, we'll explore the question of Bitcoin's relevance to institutional investors in some depth. We first review some of the **purposes** that a Bitcoin allocation might be proposed to serve in an institutional portfolio. Second, we focus on known **challenges** that institutional investors might face when investing in Bitcoin, and discuss the issues that might need to be clarified or resolved for investments in unbacked cryptocurrencies to be appropriate for an institutional allocation. Finally, because this market is growing so quickly and evolving so rapidly, we discuss what the **way forward for cryptocurrencies** might look like and how this might affect future consideration by institutional investors.

Potential Purposes of a Bitcoin Allocation

Currency Alternative Bitcoin was launched in 2009 with the intent to replace fiat currencies, which are typically backed by "the full faith and credit" of a sovereign state. Bitcoin was meant to serve as a freestanding store of value and medium of exchange, envisioned to be immune from potential manipulation by any centralized authority, including central banks and governments.

Bitcoin's creators[3] intended to avoid the implied connection that established currencies have with central banks and governments. This means that investors, faced with an unstable or untrustworthy government, might find it appealing to instrumentalize cryptocurrencies as a store of value. Especially with respect to countries with a history of capital controls, there may be an advantage in being unconnected to the political fortunes of a given country.

Three main qualities describe currencies: they are a broadly accepted medium of exchange, they serve as a unit of account, and they are a stable store of value. While Bitcoin aspires to become an established currency, it currently fails when measured against each of these three qualities.

Capital Protection When considering Bitcoin as a capital protection asset, gold is the benchmark against which we measure. Gold is appealing to investors when real interest rates are low, a time that often coincides with high equity market volatility and drawdowns. Looking at two recent volatile drawdown events — the heightened trade war rhetoric of 4Q 2018 and the COVID-19 pandemic of 1Q 2020 — we see extreme sell-offs in Bitcoin and an accompanying lack of downside protection. As shown in Figure 1, the maximum drawdown in Bitcoin substantially exceeded that of both global equities and gold; Bitcoin appears to lack the characteristics of a "value store."

Figure 1
Bitcoin Performance During Two Market Drawdowns

Description	Maximum Drawdown	
	4Q 2018	1Q 2020
NYSE Bitcoin Index	-51.11	-50.42
MSCI World Index	-17.60	-33.99
Dow Jones Commodity Gold	-2.93	-11.80

Note: Index drawdown percentages; priced in US dollars.
Source: NYSE, MSCI, Dow Jones, FactSet.

Inflation Hedging We use the broad commodities complex as a benchmark for inflation hedging. A limited supply helps commodities to quickly price in inflation throughout the business cycle. Bitcoin's supply is also limited, and the cryptocurrency is often touted as an inflation hedge as well. At this point, however, the analogy seems tenuous at best.

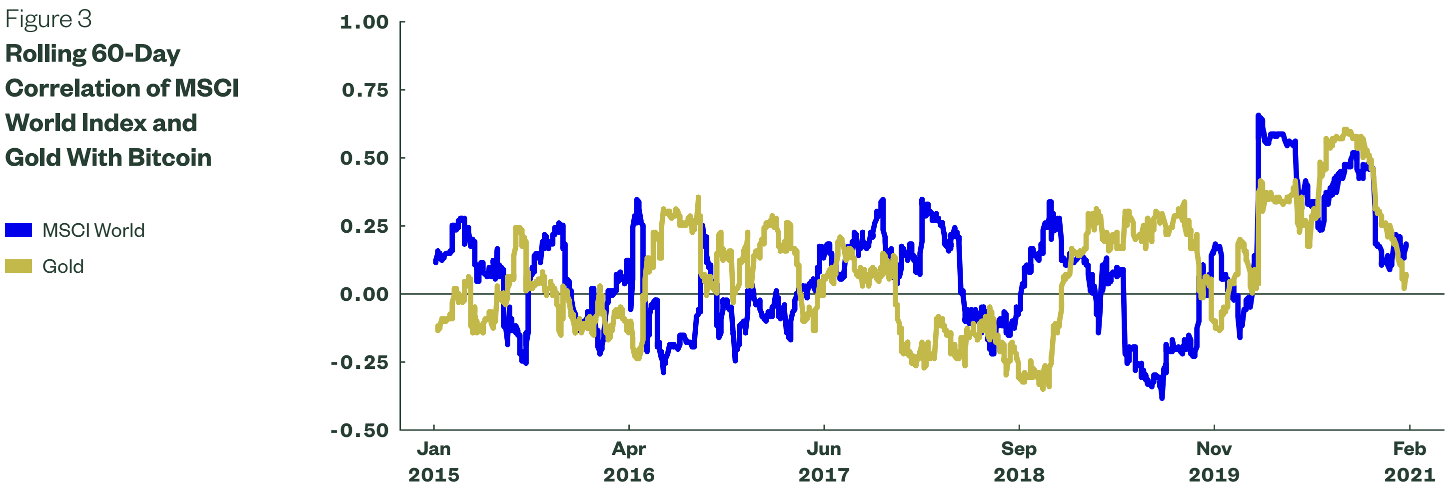
Figure 2 displays both commodities' well-established correlation with inflation and Bitcoin's lack of correlation with inflation. It is also important to remember in this discussion that Bitcoin's price history is limited; cryptocurrencies have only been in circulation during a time when inflation has been largely inconsequential.

Figure 2
Correlation of Commodities and Bitcoin With Inflation

Note: 12-month rolling correlation of month-on-month core consumer price inflation.
Source: Bloomberg, as at 31 January 2021.

Portfolio Diversification Bitcoin's generally low correlations to market movements in other asset classes over the longer term suggest that an allocation to Bitcoin could help to diversify a broader portfolio (see Figure 3). Inclusion of any uncorrelated asset frequently improves a broad portfolio's risk-adjusted returns, and some studies have shown that Bitcoin has done just that.[4]

Figure 3
Rolling 60-Day Correlation of MSCI World Index and Gold With Bitcoin



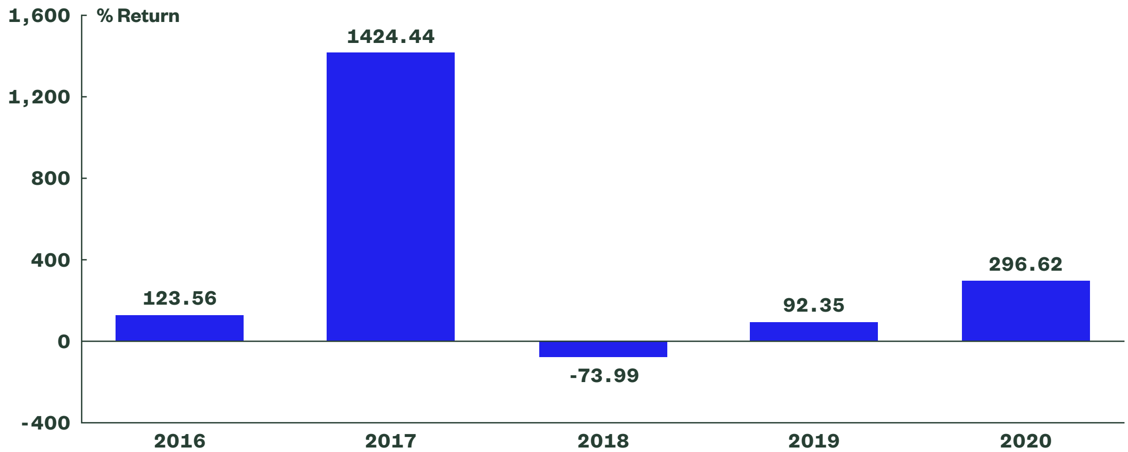
Source: Bloomberg, as at 11 February 2021.

Rolling correlations show that any relationships are sporadic. For instance, although the five-year correlation between Bitcoin and the MSCI World Index is 0.25, the rolling correlation gyrates between positive and negative territory over that period.

Bitcoin may ultimately make sense as a portfolio diversifier, but inclusion also depends on investors' tolerance of high volatility and their assessment of its return potential. For investors with a high tolerance for volatility and a return-potential assessment that isn't overly negative, Bitcoin could potentially serve as a viable allocation on the basis of diversification alone. Put differently, Bitcoin could serve a role as a diversifier *if* its diversification benefits outweigh the high volatility and potential for serious loss. See the Appendix for correlations across a broad spectrum of asset classes.

Risk Asset Volatility is an important element to consider when investing in Bitcoin. Figure 4 shows annual Bitcoin returns for the past five years. The price movement of the cryptocurrency over the past five years shows an annualized volatility of 86%. Statistically, this means that there is a 32% chance of having a yearly return greater than +/-86%, assuming a normal distribution of returns. As an asset class, only crude oil comes even remotely close to this degree of price movement, with an annualized volatility of 50%. The inflated volatility suggests potential profits from Bitcoin as an investment, which can be appealing during low-yield periods, such as the current environment.

Figure 4
Bitcoin Annual Returns



Source: NYSE, as at 31 December 2020.

With this high volatility in mind, we believe that current Bitcoin investments should be largely viewed as speculative bets rather than growth assets. Cryptocurrencies are still a novel asset class, and a true understanding of their valuation and price movement is elusive compared with traditional asset classes within a well-diversified portfolio. It's also important to remember that Bitcoin has only existed in a world of rising equity markets and low inflation. That said, it is still useful to think about the future trajectory of Bitcoin and assess the challenges that must be overcome for cryptocurrencies to emerge as a credible allocation for institutional investors.

Challenges Facing Bitcoin Investors

A variety of challenges need to be overcome in order for Bitcoin to be considered a defensible choice for institutional investors. These include valuation concerns, risks stemming from the complexities inherent to the asset, and the long-term sustainability of the Bitcoin market.

Valuation The lack of a tangible backing, yield, or income makes assessing the value of Bitcoin a complicated process and partly explains its elevated volatility levels.

The challenges in determining the intrinsic value of an unbacked cryptocurrency such as Bitcoin are numerous and complex. Existing fiat currency valuations are determined partly via expected cashflows and valuation metrics that are ultimately tied to a country's growth and inflation patterns. With Bitcoin, there are no expected future cash flows that can be discounted to the present. Valuation is therefore based solely on supply/demand factors and predicated on the hope that future investors will pay more for this intangible asset. As a result, the risk of Bitcoin losing almost all of its value is not negligible.

The wide dispersion of Bitcoin price targets among different market observers is one indicator of the difficulty in valuing cryptocurrencies. Some commentators believe that Bitcoin has the potential to displace gold as a primary alternative store of value in the form of "digital gold." In this vein, based on an equalization with the US$2.7 trillion global private stock of gold, JP Morgan recently suggested a long-term target price for Bitcoin of US$146,000.[5] In December, the CIO of Guggenheim Investments suggested a fair value of US$400,000.[6] On the other hand, UBS recently expressed that they "are somewhat skeptical of any essential real-world use cases... [and] are cognizant of the real risk of losing one's entire investment."[7]

Risks The boundary between theory and practice is considerable in the case of cryptocurrencies — and even more so for institutional investors looking to gain exposure to them. Outside of valuation, the complexities of investing in Bitcoin are multifaceted and include a range of risks that few investors are equipped to manage. These risks include those posed by a lack of understanding of the technology underpinning the crypto; fragmented regulatory frameworks; technical vulnerabilities (e.g., bugs in the code, risk of cybertheft); competitive risks (e.g., low barriers to entry for new cryptoassets); uncertainty in the application of accounting rules to cryptocurrencies; and environmental concerns related to the energy required for mining new Bitcoins.

Sustainability In a non-asset-backed cryptocurrency market that moves purely on supply and demand — and is deliberately divorced from all discernible investing fundamentals — a logical question remains as to whether a particular cryptocurrency will continue to exist over the time horizon of an institutional portfolio. The comment provided by UBS above certainly gave us pause.

The Way Forward: Regulation

We are firm believers that the technological innovation that underpins cryptocurrencies will transform the global payments market going forward. The notion of waiting days for a transaction to clear will soon become as archaic as mailing a personal check and waiting for the mail carrier to deliver it. The remaining question, however, is whether Bitcoin is that payments future. At the moment, it is not.

Though the prospect of regulation seeks to deny the rogue birthright of cryptocurrencies, regulated cryptocurrencies would become more stable mediums of exchange and stores of value, which would open them up for consideration as a currency-like asset class. With rules and regulations in place, mainstream acceptance and adoption would follow, and higher acceptance would attract more capital to the space, providing more liquidity and ultimately reducing volatility.

Recent regulatory guidance in both the United States[8] and Europe[9] offers examples of regulators' initial attempts to provide clarity, which should accelerate the legitimization process of cryptocurrencies as a whole. Conversely, further regulation may have the offsetting effect of dampening the interest of investors who are wary of authority and who were attracted to cryptocurrencies by the anonymity they provided. Nonetheless, we believe regulation is a requirement for widespread institutional adoption.

Closing Thoughts

Institutional interest in cryptocurrencies has grown over the years. Despite the potential diversification benefits of Bitcoin, the challenge of determining its value and identifying its fundamental risk and return drivers is a major hurdle to understanding its role and purpose within a broader portfolio.

Although Bitcoin is the current cryptocurrency leader, no one can be assured that this dominant position will last. For investors who are determined to take on a cryptocurrency allocation as a strategic long-term holding, a diversified basket of cryptocurrencies may be appropriate. Another option is gaining exposure via trend-following Commodity Trading Advisors or other types of hedge funds, many of which implement real-time risk monitoring with defined risk guidelines.

Ultimately, we believe each investment in a portfolio should have known drivers and relationships that allow investors to reasonably anticipate the environments in which it will excel or underperform. We currently characterize Bitcoin's behavior as that of a speculative risk asset; we continue to follow its development and look to further define its place within a diversified portfolio.

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Appendix

Figure 5

Correlation of Bitcoin With Multiple Asset Classes

Description	Annualized Standard Deviation	NYSE Bitcoin Index	MSCI World Index	MSCI Emerging Markets	MSCI AC World Small Cap	BB. U.S. Aggregate	BB. U.S. Corp. Inves. Grade	BB. U.S. High Yield — Corp.	Dow Jones Com. Gold	S&P GSCI Crude Oil	United States 10-Year Breakeven Infla. Rate
NYSE Bitcoin Index	86.74	1.00	—	—	—	—	—	—	—	—	—
MSCI World Index	15.01	0.25	1.00	—	—	—	—	—	—	—	—
MSCI Emerging Markets	17.45	0.22	0.82	1.00	—	—	—	—	—	—	—
MSCI AC World Small Cap	18.67	0.23	0.97	0.82	1.00	—	—	—	—	—	—
Bloomberg Barclays US Aggregate	3.13	0.21	0.01	0.12	0.01	1.00	—	—	—	—	—
Bloomberg Barclays US Corporate Investment Grade	5.78	0.33	0.52	0.56	0.55	0.76	1.00	—	—	—	—
Bloomberg Barclays US High Yield — Corporate	7.75	0.24	0.81	0.75	0.86	0.20	0.74	1.00	—	—	—
Dow Jones Commodity Gold	13.08	0.18	0.01	0.23	-0.01	0.55	0.40	0.13	1.00	—	—
S&P GSCI Crude Oil	49.74	0.07	0.51	0.38	0.54	-0.14	0.24	0.62	-0.15	1.00	—
United States 10-Year Breakeven Inflation Rate	—	0.01	0.00	-0.05	0.00	-0.22	-0.12	0.00	-0.30	0.15	1.00

Note: Monthly data from December 2015 to December 2020; priced in US dollars. Source: NYSE, MSCI, Bloomberg, Dow Jones, S&P, FactSet, as at December 2020.

Endnotes

1 From end September 2020 to late February 2021, Bitcoin quintupled in price from about US$10,700 to over US$53,000. As of March 1, 2021, Bitcoin had a market cap of US$906 billion, and the global cryptocurrency market had over 8,000 currencies with a total market cap of nearly US$1.5 trillion.

2 This discussion relates only to non-asset-backed cryptocurrencies, of which Bitcoin is the most prominent example. We will use "Bitcoin" in this article as a proxy for all non-asset-backed cryptocurrencies. It is helpful to make a distinction between asset-backed and unbacked cryptocurrencies. Central bank digital currencies (CBDC) and stablecoins are backed by an asset or basket of assets such as fiat currency, commodity, or index. The asset-backed principle is designed to reduce the volatility of a cryptocurrency and elevate its use case as a medium of exchange, rather than as an investment opportunity.

3 Bitcoin is a digital currency that was created in January 2009. It follows the ideas set out in a whitepaper by the mysterious and pseudonymous Satoshi Nakamoto. The identity of the person or persons who created the technology is still a mystery.

4 See https://static.bitwiseinvestments.com/Research/Bitwise-The-Case-For-Crypto-In-An-Institutional-Portfolio.pdf.

5 JP Morgan (January 2021).

6 https://bloomberg.com/news/articles/2020-12-16/guggenheim-s-scott-minerd-says-bitcoin-should-be-worth-400-000.

7 UBS (January 2021).

8 https://occ.gov/news-issuances/news-releases/2021/nr-occ-2021-2a.pdf.

9 https://politico.eu/wp-content/uploads/2020/09/CLEAN-COM-Draft-Regulation-Markets-in-Crypto-Assets.pdf.

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- Start with rigor
- Build from breadth
- Invest as stewards
- Invent the future

For four decades, these principles have helped us be the quiet power in a tumultuous investing world. Helping millions of people secure their financial futures. This takes each of our employees in 31 offices around the world, and a firm-wide conviction that we can always do it better. As a result, we are the world's third-largest asset manager with US $3.47 trillion* under our care.

* This figure is presented as of December 31, 2020 and includes approximately $75.17 billion of assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated.

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